REMARKS

[0003] Applicant respectfully requests reconsideration and allowance of all of the claims of the application. Claims 1-5, 7-15, 17-21, 23-28, 30-31, 33, 35-37 and 39-48 are presently pending. Claims amended herein are 1, 7, 10, 17-19, 23-24, 26, 31, 37 and 39. Claims cancelled herein are 6, 16, 22, 29, 32, 34 and 38. New claims added herein are 44-48.

Statement of Substance of Interview

[0004] The Examiner graciously talked with me—the undersigned representative for the Applicant—on November 29th, 2007. Applicant greatly appreciates the Examiner's willingness to talk. Such willingness is invaluable to both of us in our common goal of an expedited prosecution of this patent application.

[0005] During the interview, I discussed how the claims differed from the cited art, namely Aguilera and Graefe. Without conceding the propriety of the rejections and in the interest of expediting prosecution, I also proposed several possible clarifying amendments.

[0006] The Examiner was receptive to the arguments and the direction discussed for amending the claims, and I understood the Examiner to indicate that the proposed clarifying claim amendments appeared to distinguish over the cited art of record. However, the Examiner indicated that he would need to review the cited art more carefully and/or do another search, and requested that the proposed amendments be presented in writing.

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[0007]   Applicant herein amends the claims in the manner discussed during the interview. Accordingly, Applicant submits that the pending claims are allowable over the cited art of record for at least the reasons discussed during the interview.

Formal Request for an Interview

[0008]   If the Examiner's reply to this communication is anything other than allowance of all pending claims, then I formally request an interview with the Examiner. I encourage the Examiner to call me—the undersigned representative for the Applicant—so that we can talk about this matter so as to resolve any outstanding issues quickly and efficiently over the phone.

[0009]   Please contact me or my assistant to schedule a date and time for a telephone interview that is most convenient for both of us. While email works great for us, I welcome your call to either of us as well. Our contact information may be found on the last page of this response.

Claim Amendments and Additions

[0010]   Without conceding the propriety of the rejections herein and in the interest of expediting prosecution, Applicant amends claims 1, 7, 10, 17-19, 23-24, 26, 31, 37 and 39 herein.

[0011]   Furthermore, Applicant adds new claims 44-48 herein, which are directed towards the (key, value) pairs. These new claims are fully supported by the Application and therefore do not constitute new matter. Please see the specification pages 21-22.

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Formal Matters

Specification

[0012]   Applicant asks that the objection to the specification (p. 3 of the OA) be held in abeyance.

Drawings

[0013]   The Examiner objects to Fig. 1 and Fig. 6 (p. 2-3 of OA). Herewith, Applicant asks the objections to the drawings be held in abeyance.

Substantive Matters

Claim Rejections under § 101

[0014] Claims 10-30 and 37-43 are rejected under 35 U.S.C. § 101. In light of the amendments presented herein, Applicant respectfully submits that these claims comply with the patentability requirements of § 101 and that the § 101 rejections should be withdrawn. The Applicant further asserts that these claims are allowable. Accordingly, Applicant asks the Examiner to withdraw these rejections.

Claim Rejections under §§ 102 and/or 103

[0015] The Examiner rejects claims 1-4, 10-13 and 15 under §102. For the reasons set forth below, the Examiner has not shown that cited references anticipate the rejected claims.

[0016] In addition, the Examiner rejects claims 5-9, 14 and 16-43 under §103. For the reasons set forth below, the Examiner has not shown that the cited references address all the claimed elements.

[0017] Accordingly, Applicant respectfully requests that the § 102 and § 103 rejections be withdrawn and the case be passed along to issuance.

[0018] The Examiner's rejections are based upon the following references alone and/or in combination:

- **Aguilera:** Marcos K Aguilera, et al.; *Matching Events in a Content-based Subscription System*.
- **Java:** *An Excerpt from Java 2 Platform Std. Edition V1.4.2.*
- **Graefe:** Goetz Graefe, et al.; *Dynamic Query Evaluation Plans*

Overview of the Application

[0019]   The Application describes a technology for updating a filter engine opcode tree that is used to evaluate an input against multiple queries by evaluating common query expressions of the queries at the same time.   An opcode block is derived from the compilation of a query into a series of sequential sets of instructions, or opcodes.   A logical opcode tree structure having opcode object nodes and branch nodes is maintained whereby each tree segment included in a shared path represents an opcode block prefix that is common to two or more queries.

Cited References

[0020]   The Examiner cites Aguilera as the primary reference in the anticipation- and/or obviousness-based rejections.   The Examiner cites Java and Graefe as secondary references in the obviousness-based rejections.

Aguilera

[0021]   Aguilera describes a technology for matching an event against a large number of subscriptions, by implementing an algorithm that initially pre-

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processes the set of subscriptions into a data structure that allows fast matching. The algorithm creates a matching tree utilizing nodes to test attributes of the event.

Java

[0022]   The "Java" reference is simply relied upon by the Examiner to facilitate the removal of nodes within the tree as defined in Aguilera.

Graefe

[0023]   Graefe describes a technology for optimizing a query evaluation within a database management system.

Anticipation Rejections

[0024]   Applicant submits that the anticipation rejections are not valid because, for each rejected claim, no single reference discloses each and every element of that rejected claim.[1] Furthermore, the elements disclosed in the single reference are not arranged in the manner recited by each rejected claim.[2]

---

[1] "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); also see MPEP §2131.

[2] See *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

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Based upon Aguilera

[0025] The Examiner rejects claims 1-4, 10-13 and 15 under 35 U.S.C. §102(b) as being anticipated by Aguilera. Applicant respectfully traverses the rejections of these claims. Based on the reasons given below, Applicant asks the Examiner to withdraw the rejection of these claims.

Independent Claim 1

[0026] The Examiner indicates (Action, p. 5) the following with regard to this claim:

> As per claim 1, Aguilera et al discloses a method for updating a filter engine opcode tree (Appendix A, pg 8, predicates are equivalent to opcodes), comprising the following steps:
>
> (a) compiling a new query to derive a series of opcode objects (Sec. 3, Para. 2, "each subscription is a conjunction of *elementary predicates*);
>
> (b) traversing the opcode tree according to the series of opcode objects until an opcode object is encountered that is not included in the opcode tree, opcode objects being represented in the opcode tree as opcode nodes (App. A, Para. 2, lines 5-7); and
>
> (c) adding new opcode tree opcode nodes to correspond to the encountered opcode object and subsequent opcode objects in the series of opcode objects (App. A, Para. 2, lines 7-8).

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[0027]   Applicant submits that Aguilera does not anticipate this claim because it does not show or disclose the following elements as recited in this claim (with emphasis added):

- "implementing an optimized branch node that includes an optimized indexed lookup procedure, wherein the indexed lookup procedure is configured **to return a set of (key, value) pairs, a single (key, value) pair corresponding to one branch.**"

[0028]   The Examiner cites the last paragraph of section 5 (top of page 59) referencing a test for indexed attributes as disclosed in Aguilera. Aguilera discloses certain attributes that rarely contain "don't care" tests are selected as indices. The cited portion refers to building subtrees for each possible value of indexed attributes in order to improve search by factoring out tests for certain attributes. However, as discussed during the interview, Aguilera does not go into any detail about how the indexed attributes are functionally used to test the nodes matching the subscriptions to a given event. More specifically, Aguilera does not disclose that the "indexed lookup procedure is configured to return a set of (key, value) pairs, a single (key, value) pair corresponding to one branch" as specified in claim 1.

[0029]   Consequently, Smith does not disclose all of the claimed elements and features of this claim. Additionally, independent claim 10 has been amended

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to at least include features explained above with respect to claim 1. Accordingly, Applicant asks the Examiner to withdraw the rejection of this claim.

Dependent Claims 2-5, 7-9, 11-15, 17-18 and 44-45

[0030] These claims ultimately depend upon independent claims 1 and 10. As discussed above, claims 1 and 10 are allowable. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable. Additionally, some or all of these claims may also be allowable for additional independent reasons.

[0031] For example, claims 44 and 45 recite the feature "wherein for each given (key, value) pair corresponding to one branch, the key is the value of matching literals in the branch, and the value identifies the branch to which the literal belongs." As stated above with respect to claim 1, Aguilera is silent with regard to how the indexed attributes are functionally used to test the subscriptions against a given event within the matching tree.

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Obviousness Rejections

Based upon Aguilera, Java, and Graefe

[0032]   The Examiner rejects claims 5-9, 14, and 16-43 under 35 U.S.C. §103(a) as being unpatentable over combinations using Aguilera, Java and Graefe. Applicant respectfully traverses the rejection of these claims and asks the Examiner to withdraw the rejection of these claims.

[0033]   Independent claims 19, 26, 31 and 37 have been amended to at least include features as explained above with regard to claim 1. Furthermore, the Java and Graefe References fail to overcome the deficiencies of Aguilera with regard to claim 1.

[0034]   Claims 20-21, 23-25, 27-28, 30, 33, 35-36, 39-43 and 46-48 ultimately depend upon one of independent claims 19, 26, 31 and 37. As discussed above, claims 19, 26, 31 and 37 are allowable. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable. Additionally, some or all of these claims may also be allowable for additional independent reasons.

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Dependent Claims

[0035]   In addition to its own merits, each dependent claim is allowable for the same reasons that its base claim is allowable. Applicant requests that the Examiner withdraw the rejection of each dependent claim where its base claim is allowable.

Conclusion

[0036]   All pending claims are in condition for allowance. Applicant respectfully requests reconsideration and prompt issuance of the application. If any issues remain that prevent issuance of this application, the **Examiner is urged to contact me before issuing a subsequent Action**. Please call/email me or my assistant at your convenience.

Respectfully Submitted,

Dated: December 13, 2007   By: /Jacob Rohwer/

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